Additional Calorimetry Questions:

#1) In an isolated cup, 240 g of water (initially at 20oC) are mixed with an unknown mass of iron (initially at 500oC). When thermal equilibrium is reached, the system has a temperature of 42oC. Find the mass of the iron.

#2) A 97 g sample of gold at 7850C is dropped into 323 g of water, which has an initial temperature of 15oC. If gold has a specific heat of 0.129 J/goC, what is the final temperature of the mixture?

#3) If 59 g of water at 13oC are mixed with 87 g of water at 72oC, find the final temperature of the system.